深圳市蓝宝安科电子有限公司
Shenzhen LanbaoAnke Electronics Co.,Ltd.

承　认　书

APPROVAL SHEET

编号 NO.	LB-PTC-01
版次 Ver.	A/2

客户 Customer	

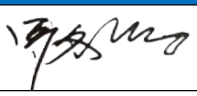
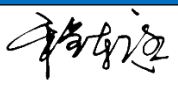
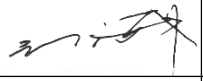
品名 Product	自恢复保险丝
系列 Series	1206

料号Part No.		规格描述Specification	备注Remark
蓝宝 LB fuse			
客　户 Customer			

供应商-蓝宝 Supplier-LB fuse		零件承认章 Approval Signet	客户 Customer	零件承认章 Approval Signet
制作 Make				
审查 Check				
批准 Approval				

联络Contact			
业务Sales	电话Telephone	手机Cellphone	邮箱E-mail
			lanbaofuse@163.com
零件承认后敬请回签一份给我司留存。			

History of Change变更记录

NO.	日期 Date	描述 Description	版次 Edition	修改 modified by	审核 Checked by
1	2022.09.18	新制订	A/1		
2	2023.04.03	更改为新封面	A/2		
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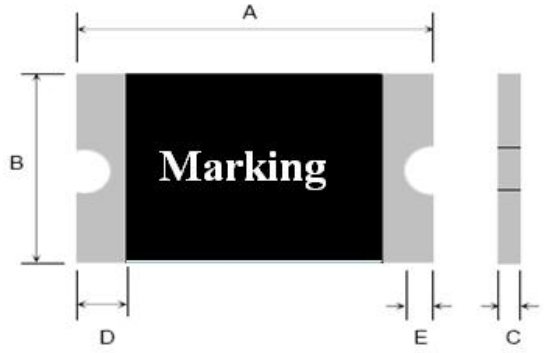
Surface Mountable PTC Resettable Fuse: LB-nSMD Series

Features：

- ✧ RoHS Compliant & Halogen Free
- ✧ faster tripping, 1206 Dimension, Surface mountable, Solid state
- ✧ Operation Current: 0.05A~2.00A
- ✧ Maximum Voltage: 6V~60Vdc
- ✧ Operating Temperature：-40℃TO 85℃

Product Dimensions



Pig.1

Terminal pad materials :Tin-Plated Nickle-copper
Terminal pad solderability : Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

Unit ： mm

Model No.	Marking on sample	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
LB-nSMD005	JZ	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
LB-nSMD010	JN	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
LB-nSMD010-33	JN	3.00	3.50	1.50	1.80	0.50	1.10	0.15	0.10
LB-nSMD012	JN	3.00	3.50	1.50	1.80	0.60	1.10	0.15	0.10
LB-nSMD016	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD020	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD020-30	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD025	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD025-24	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD025-30	JF	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD030	JB	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD030-30	JB	3.00	3.50	1.50	1.80	0.60	1.20	0.15	0.10
LB-nSMD035	JB	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD035-24	JB	3.00	3.50	1.50	1.80	0.40	0.90	0.15	0.10
LB-nSMD035-30	JB	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10

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Model No.	Marking on sample	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
LB-nSMD050	JG	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD050-13.2	JG	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD050-16	JG	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD050-24	JG	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD050-30	JG	3.00	3.50	1.50	1.80	0.50	1.20	0.15	0.10
LB-nSMD075	JA	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD075-13.2	JA	3.00	3.50	1.50	1.80	0.35	0.85	0.15	0.10
LB-nSMD075-16	JA	3.00	3.50	1.50	1.80	0.60	1.30	0.15	0.10
LB-nSMD075-24	JA	3.00	3.50	1.50	1.80	0.60	1.30	0.15	0.10
LB-nSMD100	JH	3.00	3.50	1.50	1.80	0.40	0.80	0.15	0.10
LB-nSMD100-13.2	JH	3.00	3.50	1.50	1.80	0.40	1.30	0.15	0.10
LB-nSMD100-16	JH	3.00	3.50	1.50	1.80	0.40	1.30	0.15	0.10
LB-nSMD100-24	JH	3.00	3.50	1.50	1.80	0.90	1.90	0.15	0.10
LB-nSMD110	JH	3.00	3.50	1.50	1.80	0.40	0.80	0.15	0.10
LB-nSMD110-16	JH	3.00	3.50	1.50	1.80	0.60	1.30	0.15	0.10
LB-nSMD125	JI	3.00	3.50	1.50	1.80	0.60	1.20	0.15	0.10
LB-nSMD150	JI	3.00	3.50	1.50	1.80	0.60	1.20	0.15	0.10
LB-nSMD150-12	JI	3.00	3.50	1.50	1.80	0.80	1.80	0.15	0.10
LB-nSMD175-12	LB	3.00	3.50	1.50	1.80	0.70	1.70	0.15	0.10
LB-nSMD200	LB	3.00	3.50	1.50	1.80	0.70	1.70	0.15	0.10
LB-nSMD200-12	LB	3.00	3.50	1.50	1.80	0.70	1.70	0.15	0.10

Thermal Derating Chart-IH（A）

Part number	Maximum ambient operating temperatures（℃）								
	-40	-20	0	25	40	50	60	70	85
LB-nSMD005	0.09	0.08	0.06	0.05	0.04	0.036	0.033	0.029	0.02
LB-nSMD010	0.18	0.16	0.12	0.1	0.08	0.072	0.066	0.058	0.04
LB-nSMD010-33	0.18	0.16	0.12	0.1	0.08	0.072	0.066	0.058	0.04
LB-nSMD012	0.216	0.192	0.144	0.12	0.096	0.086	0.079	0.070	0.048
LB-nSMD016	0.288	0.256	0.192	0.160	0.128	0.115	0.106	0.093	0.064
LB-nSMD020	0.31	0.26	0.22	0.20	0.18	0.16	0.15	0.13	0.07
LB-nSMD025	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
LB-nSMD025-24	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
LB-nSMD030	0.444	0.396	0.348	0.30	0.264	0.24	0.204	0.18	0.144
LB-nSMD035	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
LB-nSMD035-24	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
LB-nSMD035-30	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15

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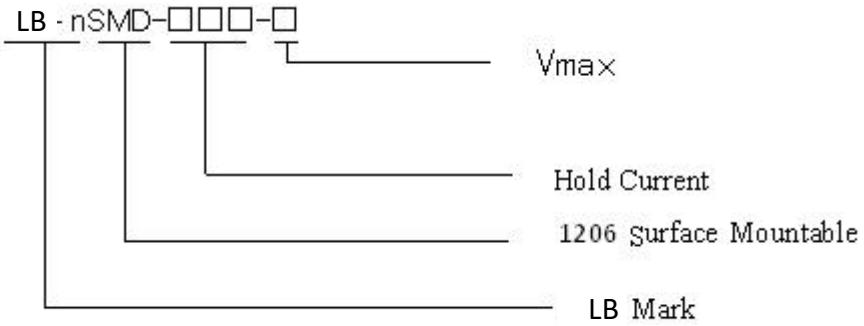
LB-nSMD050	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
LB-nSMD050-13.2	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
LB-nSMD050-16	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
LB-nSMD050-24	0.639	0.576	0.513	0.50	0.378	0.351	0.315	0.279	0.225
LB-nSMD075	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
LB-nSMD100	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
LB-nSMD100-13.2	1.305	1.179	1.035	1.00	0.756	0.693	0.621	0.549	0.432
LB-nSMD100-16/-24	1.305	1.179	1.035	1.00	0.756	0.693	0.621	0.549	0.432
LB-nSMD110	1.595	1.441	1.265	1.10	0.924	0.847	0.759	0.671	0.528
LB-nSMD125	1.813	1.638	1.438	1.250	1.050	0.963	0.863	0.763	0.600
LB-nSMD150	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
LB-nSMD175	2.54	2.26	2.01	1.75	1.49	1.37	1.24	1.12	0.90
LB-nSMD175-12	2.54	2.26	2.01	1.75	1.49	1.37	1.24	1.12	0.90
LB-nSMD200	2.60	2.44	2.35	2.00	1.78	1.67	1.50	1.45	1.10
LB-nSMD200-12	2.60	2.44	2.35	2.00	1.78	1.67	1.50	1.45	1.10

Electrical Characteristic

Model No.	Umax (Vdc)	Imax (A)	Ihold @25°C (A)	Itrip @25°C (A)	P_d Typ. (w)	Time to trip		R25	
						Current (A)	Time (Sec)	Ri_{min} (Ω)	$R1_{max}$ (Ω)
LB-nSMD005	60.0	100	0.05	0.15	0.4	0.25	1.50	3.600	50.000
LB-nSMD010	60.0	100	0.10	0.25	0.4	0.5	1.00	1.600	15.000
LB-nSMD010-33	33.0	100	0.10	0.25	0.4	0.5	1.00	1.600	15.000
LB-nSMD012	30	100	0.12	0.29	0.4	1.00	0.20	1.350	12.0
LB-nSMD016	30	100	0.16	0.37	0.4	1.00	0.30	1.00	6.00
LB-nSMD020	24.0	100	0.20	0.46	0.6	8.0	0.08	0.350	3.500
LB-nSMD020-30	30.0	100	0.20	0.46	0.6	8.0	0.08	0.350	3.500
LB-nSMD025	16.0	100	0.25	0.50	0.6	8.0	0.08	0.350	2.700
LB-nSMD025-24	24.0	100	0.25	0.50	0.6	8.0	0.08	0.350	2.700
LB-nSMD025-30	30.0	100	0.25	0.50	0.6	8.0	0.08	0.350	2.700
LB-nSMD030	16.0	100	0.30	0.65	0.6	8.0	0.10	0.250	2.00
LB-nSMD030-30	30.0	40	0.30	0.70	0.6	8.0	0.10	0.250	1.700
LB-nSMD035	16.0	100	0.35	0.75	0.6	8.0	0.10	0.250	1.300
LB-nSMD035-24	24.0	100	0.35	0.75	0.6	8.0	0.10	0.250	1.400
LB-Nsmd035-30	30.0	100	0.35	0.75	0.6	8.0	0.10	0.250	1.400
LB-nSMD050	6.0	100	0.50	1.00	0.6	8.0	0.10	0.150	0.700
LB-nSMD050-13.2	13.2	100	0.50	1.00	0.6	8.0	0.10	0.150	0.700
LB-nSMD050-16	16	100	0.50	1.00	0.6	8.0	0.10	0.150	1.000
LB-nSMD050-24	24	100	0.50	1.00	0.6	8.0	0.10	0.150	0.750
LB-nSMD050-30	30	100	0.50	1.00	0.6	8.0	0.10	0.150	1.000

Model No.	Umax (Vdc)	Imax (A)	Ihold @25°C (A)	Itrip @25°C (A)	P_d Typ. (w)	Time to trip		R25	
						Current (A)	Time (Sec)	Ri_{min} (Ω)	$R1_{max}$ (Ω)
LB-nSMD075	6.0	100	0.75	1.50	0.6	8.0	0.20	0.090	0.500
LB-nSMD075-13.2	13.2	100	0.75	1.50	0.6	8.0	0.20	0.090	0.500
LB-nSMD075-16	16	100	0.75	1.50	0.6	8.0	0.20	0.090	0.500
LB-nSMD075-24	24	40	0.75	1.50	0.6	8.0	0.20	0.090	0.500
LB-nSMD100	6.0	100	1.00	1.80	0.6	8.0	0.30	0.055	0.270
LB-nSMD100-13.2	13.2	100	1.00	1.80	0.6	8.0	0.30	0.055	0.270
LB-nSMD100-16	16	100	1.00	1.80	0.6	8.0	0.30	0.055	0.330
LB-nSMD100-24	24	40	1.00	1.80	0.6	8.0	0.30	0.050	0.330
LB-nSMD110	8.0	100	1.10	1.80	0.6	8.0	0.30	0.050	0.230
LB-nSMD110-16	16	100	1.10	1.80	0.6	8.0	0.30	0.050	0.260
LB-nSMD125	6.0	100	1.25	2.50	0.8	8.0	1.00	0.040	0.200
LB-nSMD150	6.0	100	1.50	3.00	0.8	8.0	1.00	0.040	0.130
LB-nSMD150-12	12.0	40	1.50	3.00	0.8	8.0	1.00	0.040	0.150
LB-nSMD175-12	12.0	40	1.75	3.30	0.8	8.0	1.50	0.020	0.115
LB-nSMD200	6.0	100	2.00	3.50	0.8	8.0	1.00	0.018	0.080
LB-nSMD200-12	12.0	40	2.00	3.50	0.8	8.0	1.50	0.018	0.090

Part Numbering System



Test Procedures And Requirements

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @ 25℃	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current，V_{max}，25℃	T≤maximum Time to Trip
Hold Current	30min，at I_H	No trip
Trip Cycle Life	Vmax，Imax，100cycles	No arcing or burning

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Trip Endurance	Vmax， 1 hours	No arcing or burning

Physical Characteristics and Environmental Specifications

Physical Characteristics

Terminal materials :	Tin-Plated Nickle-copper	
Soldering zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.	
Environmental Specifications		
Test	Conditions	Resistance Change
Passive aging	85℃,1000hours	±10%
Humidity aging	85℃/85%RH.100 hours	±5%
Thermal shock	MIL-STD-202,Method 107G +85℃/-40℃,20times	±33% typical resistance change
Solvent Resistance	MIL-STD-202,Method 215	no change
Vibration	ML-STD-883C,Test Condition A	No chage

Electrical Specifications:

I_{hold} = Hold Current. Maximum current device will not trip in 25°C still air.

I_{trip} = Trip Current. Minimum current at which the device will always trip in 25°C still air.

V_{max} = Maximum operating voltage device can withstand without damage at rated current (Imax).

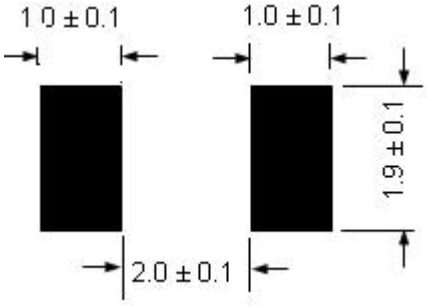
I_{max} = Maximum fault current device can withstand without damage at rated voltage (Vmax).

Pd=Maximum power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

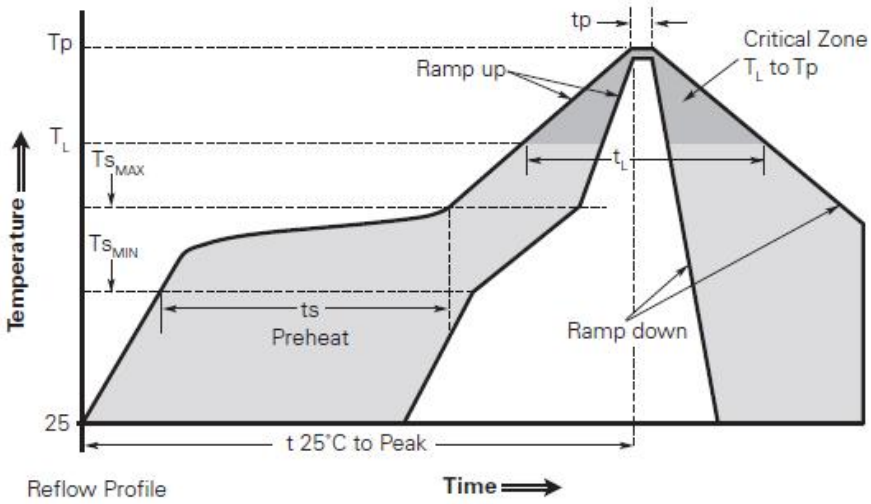
$Ri_{min/max}$ = Minimum/Maximum device resistance prior to tripping at 25°C.

$R1_{max}$ = Maximum device resistance is measured one hour post reflow.

Recommended pad layout (mm)



Solder reflow conditions



Profile Feature	Pb-Free Assembly
Average ramp up rate (Ts_{MAX} to Tp)	3°C/second max.
Preheat	
• Temperature min. (Ts_{MIN})	150°C
• Temperature max. (Ts_{MAX})	200°C
• Time (ts_{MIN} to ts_{MAX})	60-120 seconds
Time maintained above:	
• Temperature (T_L)	217°C
• Time (t_L)	60-150 seconds
Peak/Classification temperature (Tp)	260°C
Time within 5°C of actual peak temperature	
Time (tp)	30 seconds max.
Ramp down rate	3°C/second max.
Time 25°C to peak temperature	8 minutes max.

Note: All temperatures refer to topside of the package, measured on the package body surface.

● Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.

● Devices are not designed to be wave soldered to the bottom side of the board.

● Recommended maximum paste thickness is 0.25mm (0.010inch).

● Devices can be cleaned using standard industry methods and solvents.

● Soldering temprature profile meets RoHsleadfree process.

Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

Tape Specification And Reel Dimensions

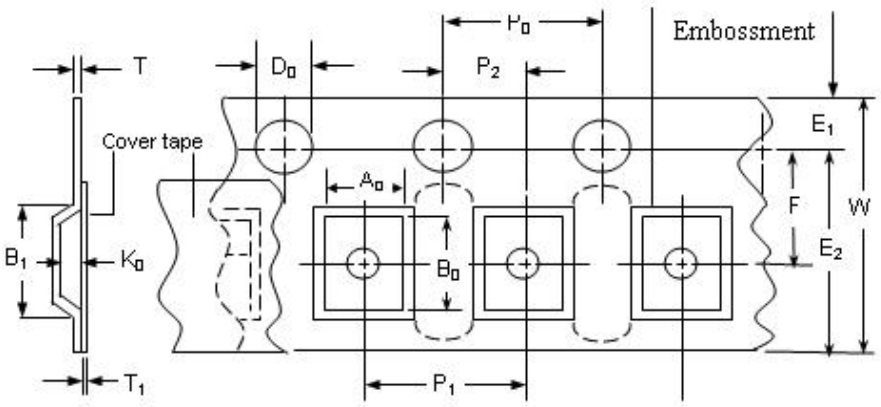
Coverning Specifications EIA 481-1(Unit:mm)	
W	8.15 +0.15/-0.3
P_0	4.0 ± 0.10
P_1	4.0± 0.10
P_2	2.0 ± 0.05
A_0	1.95 ± 0.10
B_0	3.65 ± 0.10
D_0	1.55± 0.05
F	3.50± 0.05

E_1	1.75 ± 0.10
T	0.20± 0.10
Leadermin.	390
Trailer min.	160

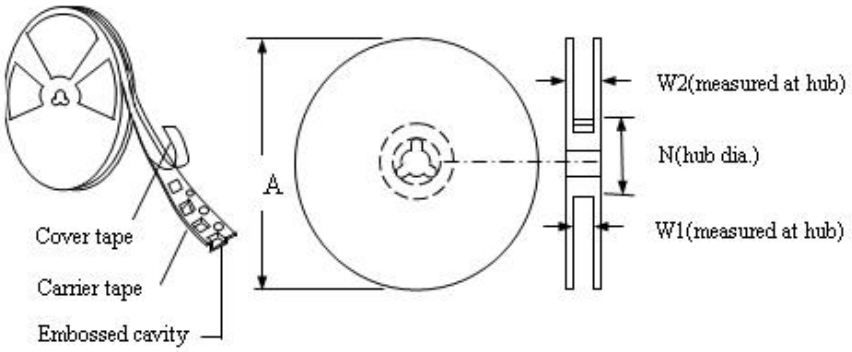
Reel Dimensions

A	178±1.0
N	59±1
W_1	8.5+1.0/-0.2
W_2	12.0±1

EIA Tape Component Dimentions



EIA Reel Dimentions



Packaging Quantity

Part number	**Quantity**	Part number	**Quantity**
LB-nSMD005	**3500**	LB-nSMD050-24	**3500**
LB-nSMD010	**3500**	LB-nSMD075	**5000**
LB-nSMD010-33	**3500**	LB-nSMD075-13.2	**5000**
LB-nSMD012	**3500**	LB-nSMD075-16	**3500**
LB-nSMD016	**5000**	LB-nSMD100	**5000**
LB-nSMD020/LB-nSMD020-30	**5000**	LB-nSMD100-13.2	**3500**
LB-nSMD025/ LB-nSMD024-24	**5000**	LB-nSMD100-16/ LB-nSMD100-24	**3500**
LB-nSMD030	**5000**	LB-nSMD110	**5000**
LB-nSMD035/ LB-nSMD035-24	**5000**	LB-nSMD125	**3500**
LB-nSMD035-30	**3500**	LB-nSMD150/LB-nSMD150-12	3500
LB-nSMD050-13.2/ LB-nSMD050-16	**5000**	LB-nSMD200/ LB-nSMD200-12	3500
LB-nSMD050-24/ LB-nSMD050-30	**3500**		

Storage

ShenZhen lanbao Anke Electronics Co.,Ltd

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The maximum ambient temperature shall not exceed 38℃. Storage temperatures higher than 38℃ could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 60%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present

WARNING

- Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- Use PPTC with a large inductance in circuit will generate a circuit voltage (L di/dt) above the rated voltage of the PPTC.
- Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices.PPTC SMD can be cleaned by standard methods.
- Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profilecould negatively impact solderability performance of our devices.

Notes

The specification is intended to present application,product and technical data to assist the user in selecting PPTC circuit production devices,However,users should imdependently evaluate and test the suitability of each product.LB makes on warranties as to the acduracy or completeness of the information and disclaims any liatility resulting form its use,LB's only obligations are those im the LB Standard Rerms and Conditions of Sale and in no case will LB be liable for any incidental,imdirect,or consequential damages arising from the sale,resale,ormisues of its products.LB reserves the right to change of update,without notice,any information contained in this specification.

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